

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
29 December 2004 (29.12.2004)

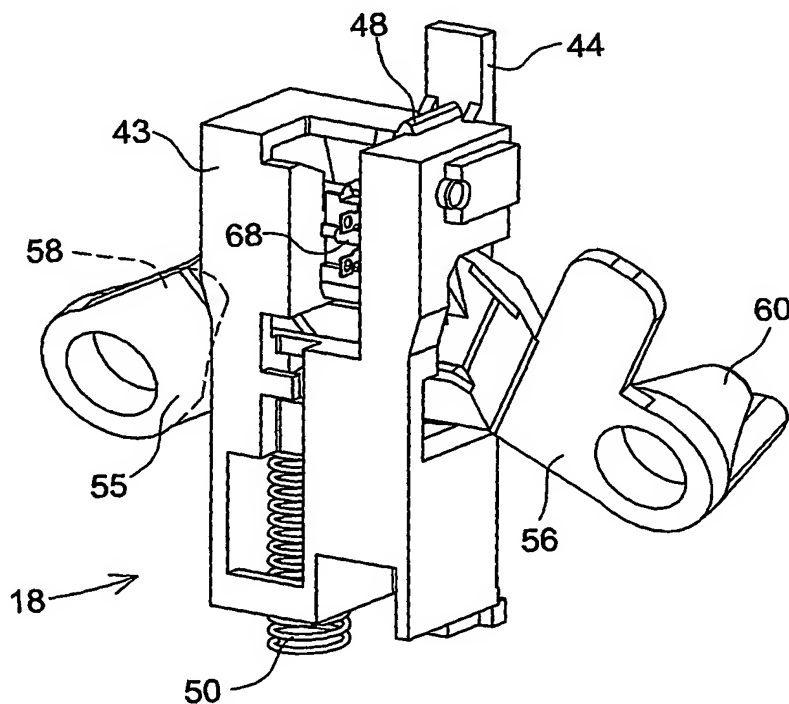
PCT

(10) International Publication Number
WO 2004/113088 A1

- (51) International Patent Classification⁷: **B41J 29/48**, 11/00
- (21) International Application Number: PCT/IT2004/000360
- (22) International Filing Date: 22 June 2004 (22.06.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: TO2003A000475 25 June 2003 (25.06.2003) IT
- (71) Applicant (for all designated States except US): **OLIVETTI TECNOST S.P.A.** [IT/IT]; Via Jervis, 77, I-10015 Ivrea (IT).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **COLOMBI, Alberto** [IT/IT]; c/o Olivetti Tecnost S.P.A., Via Jervis, 77, I-10015 Ivrea (IT). **SALUSSOLIA, Piero** [IT/IT]; c/o Olivetti Tecnost S.P.A., Via Jervis, 77, I-10015 Ivrea (IT).
- (74) Agent: **GALLO, Mario**; c/o Telecom Italia S.P.A., CLA-Ufficio Brevetti, Via Jervis, 11, I-10015 Ivrea (IT).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: DEVICE FOR DETECTING END OF PAPER IN A PRINTER



(57) Abstract: The device (18) for detecting end of paper comprises a support (43) mounted on a wall (26) of a printer (10) of receipts, obtained from a tape (12) of paper wound on a roll (14), contained in a housing (15) of the printer (10). The printer (10) is preferentially employed at a Point Of Sale (POS) and may be arranged on a horizontal work plane (21) set on its base (22), or inclined by about 90°, on a front wall (24). As a result, the roll (14) is set into the housing (15) alternatively in two positions, corresponding to the inclination assumed by the printer. A detecting lever (54) in hinge-mounted on the support (43) and is provided with two arms (55, 56) spread apart, forming an angle of approximately 120°. Fixed to each of the ends of the arms (55, 56) is a projecting element (58, 60), each of which suitable for engaging a hole in a central sprocket (17) of the roll (14), when the latter has reached its minimum dimension, in which a given length of tape remains of the sprocket (17), indicating that the latter is closed to running out. The two projecting

elements (58, 60) are positioned in such a way that only one of these enters the hole in the sprocket (17), when the printer (10) is set in one of the two positions; the support (43) is moved linearly on the wall (26) by way of a toothed cam (47), in order to adapt the position of each of the projecting elements to the dimensions of the sprocket (17) of the paper roll.

**Declarations under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE,

BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

- of inventorship (Rule 4.17(iv)) for US only

Published:

- with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.